

## Turfgrass Pest Science

11:776:408 (4 credits)

Spring Semester (odd years)

Monday, Thursday (lecture) 9:15 – 10:35 AM 194 Foran Hall

Wednesday (laboratory) 9:15 AM – 12:15 PM 194 Foran Hall

### CONTACT INFORMATION

Instructor: Dr. Bruce Clarke  
Office Location: 338 Foran Hall, 59 Dudley Rd., New Brunswick, NJ 08901  
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Office Hours: by arrangement

Instructor: Dr. Albrecht Koppenhöfer  
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Office Hours: by arrangement

### COURSE DESCRIPTION

Biology, ecology, etiology, and management of turfgrass pests including fungal, bacterial, and viral pathogens, insects, nematodes, vertebrates, and weeds; laboratory sessions focus on diagnostics of turfgrass pests and diseases.

### COURSE WEBSITE, RESOURCES AND MATERIALS

- Required textbooks:  
Smiley, R. W., P. H. Dernoeden, and B. B. Clarke. 2005. *Compendium of Turfgrass Diseases*. 3rd ed. APS Press, St. Paul, Minnesota  
Potter, D. A. 1998. *Destructive Turfgrass Insects*. Ann Arbor Press. 344 pp
- Outlines and reference materials are posted to a password protected website

### PREREQUISITES

01:119:115-116-117 General Biology OR equivalent AND 11:776:304 Turfgrass Management OR by permission of instructor

### COURSE LEARNING GOALS

(Link to Plant Biology Undergraduate Program Goals: <http://plantbiology.rutgers.edu/undergrad/plantbiology/>)

By the end of this course, the student will be able to:

1. Describe the general principles of turfgrass entomology and pathology as well as the different types of detrimental and beneficial organisms that typically occur in a turfgrass ecosystem (addresses program goals 1 and 3)
2. Identify the major pests and diseases of turfgrass and the symptoms and damage they cause (addresses program goal 1)
3. Discuss the concept of Integrated Pest Management (including cultural, biological, and chemical controls) and how it applies to turfgrass systems (addresses program goals 1 to 3)

## ASSIGNMENTS/RESPONSIBILITIES AND ASSESSMENT

### Grading

- Mid-term exam (entomology section only) 25%
- Term paper 15%
- Quizzes (6) 25%
- Lab work 10%
- Final Exam (pathology section only) 25%
- Scale: 90-100 = A; 80-89 = B; 70-79 = C; 60-69 = D

**Term paper:** topics may be selected from an approved list. Term paper outline is due week 10 and the paper is due week 14.

**Laboratory:** students are required to hand in work at the end of each laboratory period. Grades (10% of total) are subjective assessments of how well the student demonstrates a grasp of the assignment.

**Learning goals assessment:** Specific questions on exams will be used to assess student knowledge of all course learning goals. Graded laboratory assignments satisfy course learning goal 2. In the term paper, students will communicate an in-depth knowledge of a topic that emphasizes turf pest management in a broader context (course learning goals 2 and 3). The percentage score on these assessments will determine the level of mastery: >90% outstanding; 80-89% good; 70-79% satisfactory; <69% unsatisfactory.

## PARTICIPATION GRADE AND ABSENCE POLICY

Attendance is mandatory and discussion in class is expected. Students unable to attend may contact the instructor via e-mail prior to the missed class or may use the University absence reporting website (<https://sims.rutgers.edu/ssra/>) to indicate the date and reason for the absence. An e-mail is automatically sent to the instructor.

## COURSE TOPICS

Week	Topic
<b>Entomology</b>	
1	Lab: Turfgrass identification; resistant grasses Introduction to turfgrasses: value, benefits, anatomy, and physiology
2	Integrated pest management Lab: IPM and chemical pesticide fundamentals
3	Tactics I Tactics II Lab: Insect basics ( <b>Quiz 1</b> )
4	Fundamentals of Entomology Leaf and stem chewing pests Lab: Insect diagnostics Sucking pests
5	Root-infesting pests I Lab: Case studies in turfgrass entomology ( <b>Quiz 2</b> ) Root-infesting pests II
6	Stem/crown burrowing insects Lab: Biocontrol and nematode methodology Fundamentals of nematology
7	Biology of turf nematodes I Lab: Nematode diagnostics ( <b>Quiz 3</b> ) Biology of turf nematodes II
8	In class review for exam

Week	Topic
	<b>Mid-term exam (entomology section only)</b> Innocuous/annoying invertebrates and vertebrates varminits <b>Spring recess</b>
<b>Plant Pathology</b>	
9	Fundamentals of plant pathology and disease management Lab: Disease diagnostics Cool weather diseases I
10	Fungicides and resistance management strategies Lab: Microscope identification of turf pathogens I ( <b>Quiz 4</b> ) Optimizing fungicide performance <b>Outlines due</b>
11	Root diseases: Ascomycota I Lab: Microscopic identification of turf pathogens II Foliar diseases: Ascomycota II
12	Foliar diseases: Ascomycota III Lab: Case studies in turfgrass pathology I ( <b>Quiz 5</b> ) Foliar diseases: Basidiomycota
13	Foliar diseases: Deuteromycota I Lab: Case studies in turfgrass pathology II Deuteromycota II
14	Oomycota and associated pathogens Lab: Field trip ( <b>Quiz 6</b> ) New and Emerging diseases; biological control <b>Paper due</b> In class review for exam
<b>Final Exam (plant pathology section only) (to be determined)</b>	

## FINAL EXAM/PAPER DATE AND TIME

The Online Final exam Schedule: <http://finalexams.rutgers.edu/>

## ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

## ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy/>

The principles of academic integrity require that a student:

- Properly acknowledge and cite all use of the ideas, results, or words of others.
- Properly acknowledge all contributors to a given piece of work.
- Make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- Obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- Treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- Uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that:

- Everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- All student work is fairly evaluated and no student has an inappropriate advantage over others.
- The academic and ethical development of all students is fostered.
- The reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

## STUDENT WELLNESS SERVICES

**Just In Case Web App** <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

### **Counseling, ADAP & Psychiatric Services (CAPS)**

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / [www.rhscaps.rutgers.edu/](http://www.rhscaps.rutgers.edu/)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

### **Violence Prevention & Victim Assistance (VPVA)**

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

### **Disability Services**

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

### **Scarlet Listeners**

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.